

# 2SD1510

## Silicon PNP Triple-Diffused Planar Darlington Type

### Power Amplifier

#### ■ Features

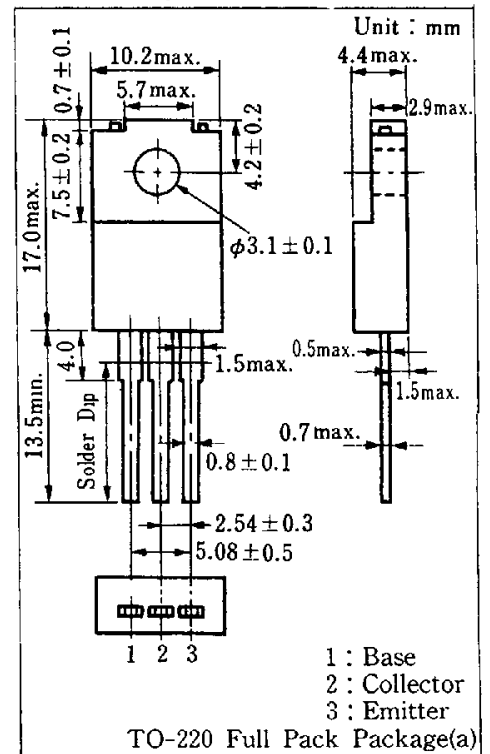
- High DC current gain ( $h_{FE}$ )
- High speed switching
- "Full Pack" package for simplified mounting on a heat sink with one screw

www.DataSheet4U.com

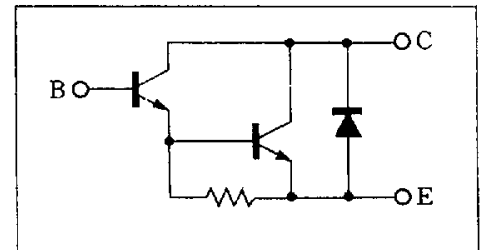
#### ■ Absolute Maximum Ratings ( $T_c=25^\circ\text{C}$ )

Item	Symbol	Value	Unit
Collector-base voltage	$V_{CB0}$	60	V
Collector-emitter voltage	$V_{CE0}$	60	V
Emitter-base voltage	$V_{EB0}$	6	V
Peak collector current	$I_{CP}$	8	A
Collector current	$I_C$	4	A
Collector power dissipation	$T_c=25^\circ\text{C}$	35	W
	$T_a=25^\circ\text{C}$	2	
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 ~ +150	$^\circ\text{C}$

#### ■ Package Dimensions



#### ■ Inner Circuit



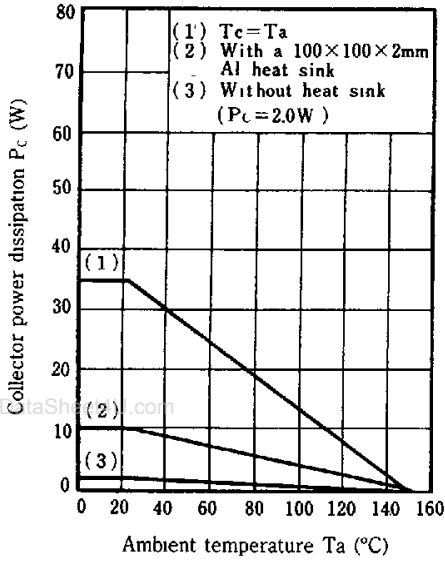
#### ■ Electrical Characteristics ( $T_c=25^\circ\text{C}$ )

Item	Symbol	Condition	min.	typ.	max.	Unit
Collector cutoff current	$I_{CB0}$	$V_{CB}=60\text{ V}, I_E=0$			100	$\mu\text{A}$
Emitter cutoff current	$I_{EB0}$	$V_{EB}=6\text{ V}, I_C=0$			2	mA
Collector-emitter voltage	$V_{CE0}$	$I_C=30\text{ mA}, I_B=0$	60			V
DC current gain	$h_{FE1}$	$V_{CE}=3\text{ V}, I_C=0.5\text{ A}$	1000			
	$h_{FE2}^*$	$V_{CE}=3\text{ V}, I_C=3\text{ A}$	1000		10000	
Base-emitter voltage	$V_{BE}$	$V_{CE}=3\text{ V}, I_C=3\text{ A}$			2.5	V
Collector-emitter saturation voltage	$V_{CE(sat)1}$	$I_C=3\text{ A}, I_B=12\text{ mA}$			2	V
	$V_{CE(sat)2}$	$I_C=5\text{ A}, I_B=20\text{ mA}$			4	V
Transition frequency	$f_T$	$V_{CE}=10\text{ V}, I_C=0.5\text{ A}, f=1\text{ MHz}$		20		MHz

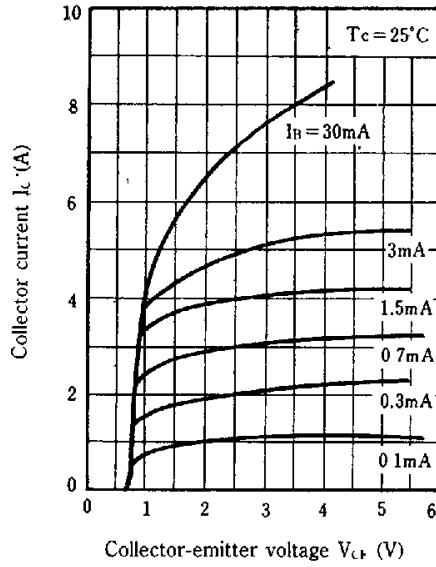
#### \* $h_{FE2}$ Classifications

Class	R	Q	P
$h_{FE2}$	1000 ~ 2500	2000 ~ 5000	4000 ~ 10000

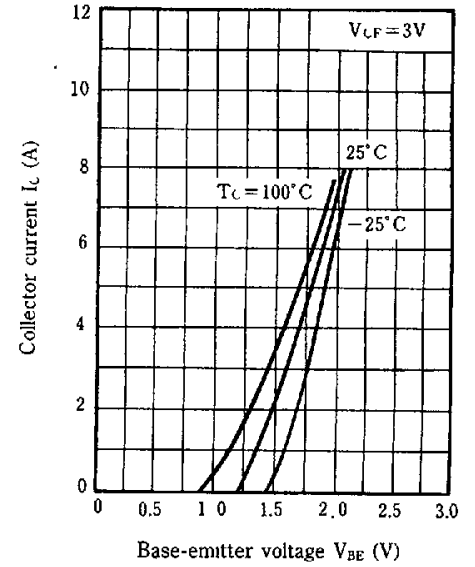
**$P_C - T_a$**



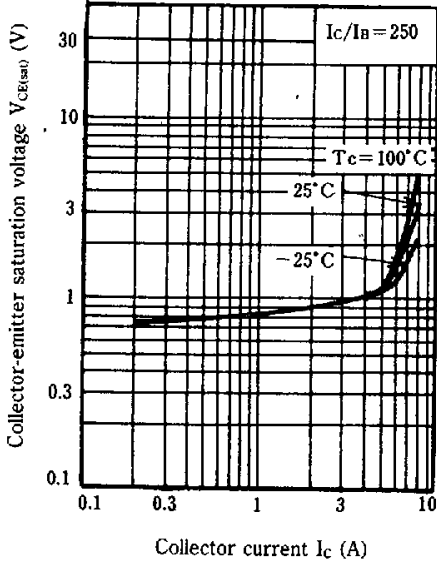
**$I_C - V_{CE}$**



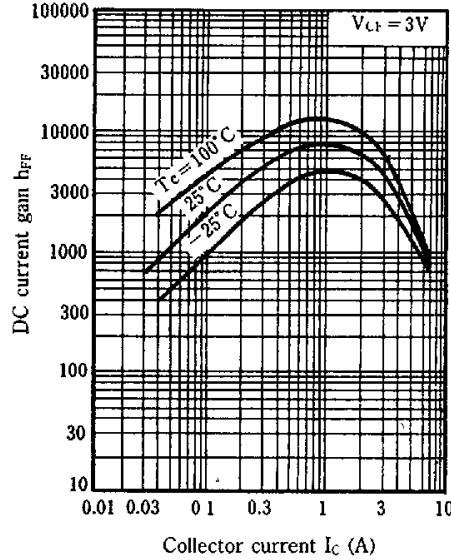
**$I_C - V_{BE}$**



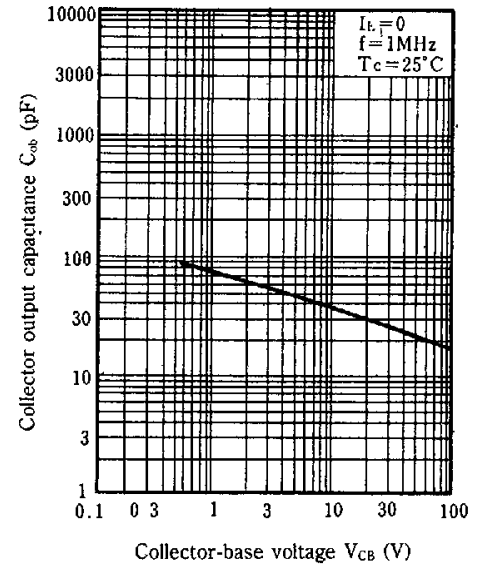
**$V_{CE(sat)} - I_C$**



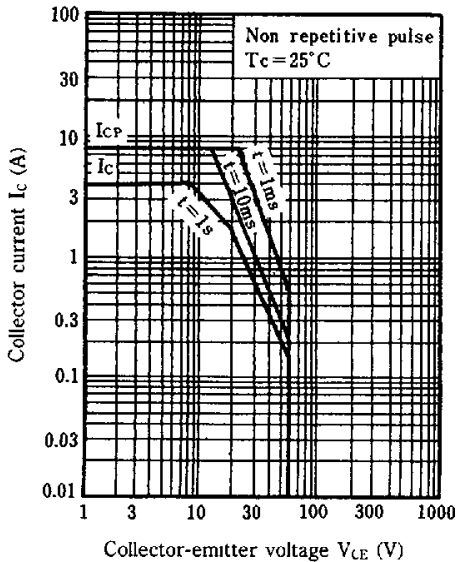
**$h_{FE} - I_C$**



**$C_{ob} - V_{CB}$**



**Area of safe operation (ASO)**



**$R_{th(t)} - t$**

